

NOTES

JUVENILE LEAVES IN OKLAHOMA *MARSILEA* (MARSILEACEAE)—During June 1973, while teaching at the University of Oklahoma Biological Station, I collected specimens of *Marsilea* that were unusual, at least to me, because of the diversity of form exhibited by their leaves. Long a subscriber to—and a teacher of—the maxim that *Marsilea* leaves are quadrifoliolate, I was surprised to see simple, bilobed, trilobed, and other unexpectedly-shaped leaves as well as “normal” quadrifoliolate ones. The present note and illustration call attention to the unusual leaves, which apparently are seldom seen.

The plants, collected 21 June 1973, were rooted in the muddy bottom of a clearwater pond about 1 mile north of Headquarters, Tishomingo National Wildlife Refuge, Johnston County, Oklahoma. Growing with them were *Chara*, *Typha* seedlings, *Potamogeton diversifolius*, *P. nodosus*, *Najas guadalupensis*, *Echinodorus rostratus*, *Elatine triandra*, and *Bacopa rotundifolia*. Water at the collection site was about 12 inches deep. The blades of the quadrifoliolate leaves—one per specimen—were floating; the petiole of each arose from a rhizome that was very shallowly covered with mud of the pond bottom. No rhizome I collected exceeded about 8 cm in length. The “unusual” leaves, arising each at a different node, were small, not over 1 cm long (including the petiole). Unfortunately, because I preserved only individual leaves after removing them from rhizomes, I do not know if leaf shape correlated with position on a rhizome.

These leaves were certainly “juvenile” leaves such as those described (pp. 74, 75) and illustrated (p. 37) by K. M. Gupta in his book *Marsilea* (Bot. Monogr. 2. Council of Scientific & Industrial Research, New Delhi, 1962). According to Gupta, new “sporelings” [i.e., sporophytes] are produced by germination of perennating organs “when the water in the ponds settles down to a suitable depth of two to three feet. As usual the young plants pass through the well-known [!] juvenile stages producing unifoliolate, bifoliolate, trifoliolate, quadrifoliolate submerged and finally the floating leaves characteristic of the genus.”

Eames, in *Morphology of Vascular Plants. Lower Groups* (1936) wrote: “The earliest leaves of *Marsilea* are subulate, like those of *Pilularia*; then follow, in turn, spatulate; two-lobed, as in *Regnellidium*; four-lobed; and finally the four-leaflet type.”

Later in the 1973 season, as water level in the pond fell, I collected typical *M. mucronata* A. Br. on the drying pond margin.—John W. Thieret, Department of Biological Sciences, Northern Kentucky University, Highland Heights, KY 41076.

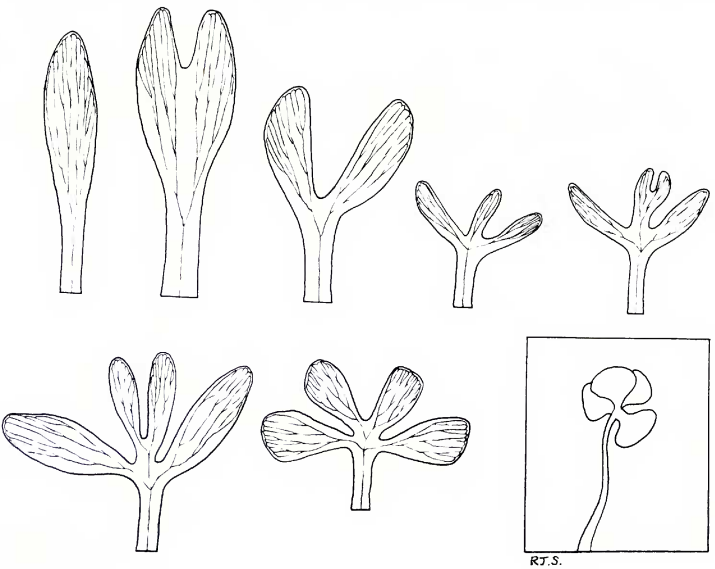


Figure 1. *Marsilea micronata*. Upper row and lower left and center, juvenile leaves, 4X; lower right, in square, adult leaf, $\frac{1}{2}$ X.